Educational Research Bulletin

OCTOBER 8, 1930

Vol. IX, No. 14

Economics for Children

By EDGAR DALE

Numerous studies have been made to determine civic, health, recreational, mathematical, and language deficiencies in curriculums, and where practicable and desirable, remedial programs have been planned to correct these faults. Almost nothing has been done to assist the individual in remedying the personal economic problems with which he is faced. This fact is brought out forcibly when one examines the problems in buying and selling found in arithmetic textbooks. These problems are included in the textbooks for the major purpose of teaching the child certain mathematical skills, and little or no attention is commonly paid, either by the teacher or by the textbook writer, to the economic import of the problem.

One highly desirable type of economic training which might be derived from arithmetic problems would be that of acquainting the child with prices of commodities which he is likely to purchase. Unfortunately, by the time a textbook is a few years old, the current price level may have changed so much as to bear little relationship to the book and its tables. Not only is there this change over a period of years, but there is also a striking change dependent upon the season or the location. Because of the emphasis on the computational aspect of the problem, and because all the testing of the pupils is done in terms of the correct process or answer, pupils soon become indifferent to those aspects of the problem which have no direct bearing on getting the right answer. As a result, the economic implications of arithmetic training are slighted. The schoolroom work bears little relationship to the life that the child is living outside of school. This lack of relationship probably is due to the fact that no factual basis yet exists for the formulation of a concerted program of economic training for children.

An exploratory study in this field looking toward the development of techniques for discovering the out-of-school activities of children in one economic area, the purchase of foods, has been made. The data from this study were secured by an investigator, stationed at a grocery store, who noted the articles purchased by children, estimated their age, took down the conversation in shorthand, noted the child's general attitude, the amount of the purchase, whether change was secured, and whether it was counted.[1]

TABLE I

APPROXIMATE AGES OF THE CHILDREN STUDIED

Age	Boys	Girls	Age	Boys	Girls
(1)	(2)	(3)	(1)	(2)	(3)
4		1	11	1	
5			12	2	2
6	4	8	13	2	1
7	11	9	14	6	2
8	9	11	15	3	1
9	11	9			
10	5	8	Total	54	52

TABLE II

AMOUNTS SPENT BY THE CHILDREN

Amount Spent	Cash	Charge	Amount Spent	Cash	Charge
(1)	(2)	(3)	(1)	(2)	(3)
$ .01 to $ .10	15	1	$ .61 to $ .70	4	
.11 to .20	14	4	.71 to .80	1	
.21 to .30	15	2	.81 to .90	2	
.31 to .40	9	1	.91 to 1.00	3	
.41 to .50	4		Over 1.00	3	1
.51 to .60	3	2	Total	73	11

Table I indicates the approximate ages of the children studied. From this inadequate sample of 106 children, it was found that most purchases were made by children between the ages of seven and ten. If a more extensive study duplicated these findings, and if the purchase of foods is a very common activity among school children of this age, then further factual information about the nature of the purchases would prove useful to the arithmetic curriculum-maker.

[1] *See also* Chase, Sara. "Individual Differences in the Experience of Children." An unpublished Master's thesis on file at the University of Chicago, pp. 49-50.

Table II shows the amounts of money spent by the children. The following facts can be gleaned from this table: approximately 75 per cent of the purchases are under 50 cents in amount; approximately 60 per cent of them are less than 30 cents in amount. If these facts were found to be true in a study utilizing an adequate sampling, it would indicate somewhat specifically one of the types of computational training received by young children outside of school.

Another item studied by our investigator was that relating to the receiving of change by the children. We found that of the 36 children who received change from their purchases, 25 counted it and 11 did not. It should be noted in this connection that sometimes the change was only one coin, which necessitated merely the recognition of the coin and the adding or subtracting to see if it was the proper amount. Whether or not children count change, therefore, is difficult to determine since it may or may not be an overt act.

It would appear highly desirable in this connection to discover also the amount of adding done by the children after a series of purchases has been made. This again might prove difficult, since the children would have to make overt manifestations of this addition. The purchases made by the children are shown in the following tabulation:

Purchases	Number of Times	Purchases	Number of Times
apples	2	matches	1
bacon	1	mayonnaise	1
beans	7	milk	9
beef	3	molasses	1
bird seed	1	mush	2
bread	19	oatmeal	2
butter	3	onions	1
cabbage	2	oranges	2
candy	5	oysters	1
catsup	2	peanut butter	1
celery	1	peanuts	1
cheese	2	peas	2
Cheese Snax	2	pecans	1
Chipso	1	popcorn	1
cigarettes	1	pork chops	4
citron	1	potatoes	3
cleanser	1	raisins	3
coffee	4	Rinso	1
cookies	11	rolls	6
corn	2	salt	1
Corn Flakes	1	sardines	3

Purchases	Number of Times	Purchases	Number of Times
corn meal	1	sauerkraut	1
cough drops	1	sausage	5
crackers	7	soap	5
Cream of Wheat	1	soda	1
doughnuts	3	soup	1
fruit bars	1	spaghetti	3
flour	5	spinach	2
Graham crackers	3	steak	2
Grape Nuts	1	stove polish	1
grapes	1	sugar	1
Hamburg steak	7	tomatoes (can)	8
ham	1	tuna fish	1
lard	3	washing powder	1
liver	2	wieners	7
lemon peel	1	yeast	2
Lux	1	Total	199

No attempt was made to group these items because of the small size of the sample used. It may be noted, however, that meat, vegetables, bread, fruit, and milk, in the order named, were the most frequent purchases. In a questionnaire and diary study made by Sara Chase, using much more extensive data, it was discovered that in a group of fourth-, fifth-, and sixth-grade children, foods were purchased in the following frequency order: milk, bread, pastry, meat, and fruit.

The gathering of extensive data of this kind should prove valuable, not only to the teacher and the professional curriculum-maker, but to parents as well, since economic training of children is a joint responsibility of these agencies. Too frequently parents conceive of "going to the store" merely as a series of errands for the child and neglect to make it as valuable training as they might. Actually, this activity has implicit in it fruitful training in many areas, namely, the meaning of money and credit, economic implications of varying prices, acquaintance with numbers, training in computational skills, and insight into the need for co-operative effort in our highly interdependent modern society.

* * *

Central Ohio Conference on Supervision and Teacher Training will meet at Ohio Wesleyan University, Delaware, Ohio, November 21 and 22, 1930. The general sessions will be devoted to the problems of subject-matter courses for teachers, the work of critic teachers, the practical problems of supervision, and the applied work in supervision.

A Case in Reading

By HOMER CARTER

BILLY is an attractive little boy of eight years. He generally greets one with a cheerful grin and tries to anticipate ways of winning favor. He is especially interested in making things, and it is evident that he likes animals. Persistence and aggressiveness seem to be lacking in his personality, though when irritated there are evidences of a stubbornness which are refreshing. Aside from these characteristics, Billy is apparently a normal child who needs the influence of boys and a dad who has time to be a "pal." He was first brought to the Ohio State University Clinic, February 1, 1930, by his brother. A careful examination was completed, and a report was placed on file March 1, 1930, recommending that coaching in reading be attempted. This, however, was not started until the following June.

Billy's intelligence quotient on the Stanford-Binet is 97; scatter is insignificant and all indications point to normalcy. Unusual visual memory is indicated by the score on the Knox Cube Test. The Goodenough Intelligence Tests indicate practically normal capacity. The Porteus Maze, which correlates highly with industrial aptitude rather than scholastic ability, indicates not only a high score but foresight, prudence, and caution. High scores are recorded on the Goddard and the Dearborn performance tests. The score on the Healy Pictorial, II, shows more than average ability to see relationships and to analyze a given situation. The record on the Kuhlman-Anderson Intelligence Test emphasizes the fact that the child's innate capacity is normal. Billy's scores on the Sangren Information Test for Young Children show that he possesses the maturity of a six-year-old, and that he lacks the background ordinarily possessed by children much younger than he.

Three eye-preference tests, Miles A-B-C Test, Stereoscope Digits Test, and Pointing Test, indicated a marked preference for the left eye. This fact led to a detailed examination of the eyes by a specialist. A serious eye-defect was found which was diagnosed as, "a divergent insufficiency and shut off of right eye so that the child is intermittently one-eyed and then

NOTE.—This is the report of one of several tutoring cases which were carried on under the supervision of Miss MacLatchy during the Summer Quarter.

two-eyed." All tests of hand preference indicated right-handedness. Auditory acuity is normal.

AT THE beginning of this study Billy had been promoted to the third grade, after having spent one year in the first grade and one year in the second grade. His marks for the last year were: reading, fair; spelling, fair; language, good; writing, good; arithmetic, good; music, poor; drawing, fair.

His attendance had been regular except for a five weeks' absence due to whooping cough. His general attitude toward the children of the group had been friendly, though there had been reports of "unpleasantness" between Billy and his teacher.

TABLE I

INITIAL AND FINAL MEASURES IN READING

TESTS	RAW SCORE		AGE SCORE		GRADE SCORE	
	Initial	Final	Initial	Final	Initial	Final
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Gray's Oral Paragraph	3	12	6.9	7.5	1.45	2.0
2. Gates Primary Tests:						
Word Recognition	27	38	7.8	8.6	2.33	3.0
Phrase and Sentence	15	24	7.5	8.1	2.05	2.6
Reading Directions	9	15	7.2	7.6	1.7	2.1
3. Haggerty Reading Tests:						
Test I	10	13	7.0	.....	1.8	2.3
Test II	2	6	.....	.....	1.0	1.8
4. Word Recognition Detroit	26	32	.....	.....	2.8	3.5
Average grade score	.....	.....	.....	.....	1.9	2.5

NOTE.—Scores on Gates Word Recognition tests, both initial and final, are smoothed, also the score on Gates Phrase and Sentences, initial. The grade scores given are computed from the unsmoothed scores.

He had not enjoyed school. Frequently, he had returned home using the excuse that he "couldn't get the door open." His mother thought that he was afraid of being tardy. He had disliked reading saying, "It's too hard. I can't do it anyhow."

A study of Billy's reading history indicates that there has not been a stimulating atmosphere in the home which would lead to a desire to read on his part, for there are few children's books of any sort, and few indeed which would appeal to a second-grade child. Instruction in reading before he entered the first grade was not attempted in either home or kindergarten. Instruction in the first grade was formal, with an emphasis on phonics and content. At no time has Billy been

considered an intelligent, fluent, and independent reader. He first encountered serious reading difficulties upon entering the second grade; no earnest attempt, however, was made to remedy the situation. He had done little or no voluntary reading.

Several reading tests were given. These, with the raw

TABLE II

SUMMARY OF DIAGNOSIS

Signs of Reading Deficiencies	Basis of Observation	Remedial Suggestions
(1)	(2)	(3)
1. Defective vision	Loses place Miles A-B-C Test Clinical examination	Proper glasses
2. Lack of apperceptive background	Sangren Information Test Limited knowledge of simple rhymes, stories, and common expressions	Provide interesting books Enrichment of experience Story telling Picture Story procedure
3. Lack of confidence.....	Frequent statements, "I can't do it. I can't read. I'm no good."	Provide opportunity for success Commendation Enlist aid of parents
4. Comprehension of lengthy thought units	Actual test results Poor performance on phrase, sentence, and paragraph reading items	Drill exercises in recognizing phrases
5. Poor reading habits.....	Pointing, sounding of simple words, lip-movements, and vocalization	Use marker Do not emphasize phonics Silent reading motivated by questions. Glasses will help here.
6. Refusal of words.....	Iota Daily experience	Careful systematic word development, using Picture Story, Gates-Huber and Hardy vocabularies
7. Faulty vowels	Iota series Daily experience	Drill with words composed of similar consonant arrangements with different vowels
8. Addition of sounds.....	Iota series Daily experience	Flash-card exercises
9. Substitution of words....	Iota series Daily experience	Flash-card exercises

scores transmuted to age scores and grade scores, are listed in the columns of Table I marked "initial." The Iota Tests devised by Samuel T. Orton were given, and the types of analysis suggested by Miss Monroe were used in trying to determine the nature of Billy's difficulties in reading.[1] His

[1] *See items*, Monroe, Marian. "Methods for Diagnosis and Treatment of Cases of Reading Disability," *Genetic Psychology Monographs*, IV (October-November), 1928, pp. 345-432.

score on the reading subtests of the Stanford Achievement were Word Meaning, 3, and Paragraph Meaning, 19. Although his score on arithmetic computation was considerably above the third-grade norm, his score on arithmetic reasoning was just above the norm for the middle of the second grade. His total score was somewhat below the norm set for the middle of the second grade. It would seem that the total score and educational age have been somewhat lowered by his poor performance on the reading test.

In addition to these test results, casual observation of Billy's attempt to read showed that he lost his place and pointed;

TABLE III

ANALYSIS OF ERRORS IN INITIAL AND FINAL TESTS

CLASSIFICATION	FREQUENCY	
	Initial	Final
(1)	(2)	(3)
Faulty vowels	48	5
Faulty consonants	27	3
Reversals	8	0
Addition of sounds	28	5
Omission of sounds	18	3
Substitution	21	2
Addition of words	0	0
Omission of words	3	3
Repetition of words	3	0
Refused words	0	1
Words aided	18	22

vocalized; attempted to sound simple words; found the context of little help; made mistakes with such words as "dog," "day"; had marked difficulty in telling a simple story; and had a limited knowledge of nursery tales and Mother Goose rhymes which most children know well.

A CAREFUL consideration of these data previously presented leads to the suggestion that the basal cause of the reading difficulty is defective vision, and, if that is true, a restoration to normal vision will, in a reasonable length of time, cause a decided improvement. There are, however, indications that at least eight other factors should be listed as contributing causes. These are: lack of background, lack of confidence, difficulty in

dealing with large thought units, poor reading habits, the refusal of words or limited vocabulary, and such typical errors as addition of sounds, substitution of words, and faulty vowels. Table II gives a brief résumé of the different disabilities, the basis of their observation, and suggested remedial devices for each defect.

The *Picture Story Reading Lessons*[2] were used first to develop Billy's confidence in his own ability to read. As the tutoring period advanced the Primer, First and Second Readers of the Hardy series were used. Words with similar consonants were practiced. The Horn-Shields Silent Reading Flash Cards helped to vary the drill periods.[3]

EQUIVALENT forms of the reading tests were administered August 22 and 23. Results of these tests are indicated in the columns of Table I marked "final."

A study of these data shows significant gains in reading ability as measured by these tests. The average initial grade score was 1.9 and the average final grade score was 2.5. This would indicate an approximate gain of six months during the coaching period. It is evident that the greatest gain has been in word-recognition, and that the least gain has been in ability to comprehend the longer thought units.

Table III shows a classification of errors made on the initial and final tests. It is evident that a gain in reading ability can be inferred from the significant decrease in the number of reading errors, even though more subject-matter was covered in the final test than on the initial.

To have a fairly accurate check on the actual number of words mastered during the coaching period a comparative placement of words used in the Picture Story Procedure, Gates and Huber First Reader, and the Hardy Chart, Primer and First Reader was compiled. A careful check has been made of the number of words in the child's vocabulary at the beginning and at the end of the coaching period. Of the 265 words used in the Picture Story Series, 173, or 65 per cent, were known to the child on July 26, and 228, or 86 per cent, made up his reading vocabulary August 23. This indicates an approximate gain of three new words each day during the interim.

[2] Courtis, S. A., and Smith, N. B. Yonkers, New York: World Book Company, 1923.

[3] Horn, E., and Shields, G. M. *Directions for Using the Horn-Shields Silent Reading Flash Card Exercises.*

DATA previously presented indicate that fairly satisfactory gains have been made in the different reading abilities measured by the Gray's Oral Reading Test, the Gates and Haggerty silent-reading tests, and the Detroit Word Recognition Test. However, the results of the Gates Visual Perception Test show no gain. Billy still continued to lose his place and to point; this did not necessarily mean that the eye-defect had not been corrected, but rather that Billy had not yet entirely mastered new habits of reading. This may have been due to the recent change of lenses (August 15) and the lack of adjustment of eye-muscles.

Even though the child continued to "point" there were evidences of ability to attack new words that were not present at the beginning of the coaching period. The context seemed to have greater meaning, and Billy had acquired some ability to reproduce accurately the content of subject-matter. There was also less tendency to "sound" simple words already known. He seemed more interested in stories and reading activities, and he asked for additional animal stories. However, Billy felt that he was not a good reader and looked with dread to the beginning of school in September.

[Vol. IX, No. 14]

* * *

A PROMISING test of the vocabulary of young children, the Van Alstyne Picture Vocabulary Test for Preschool Children, has been prepared by Dorothy Van Alstyne. It is published by the Public School Publishing Company. No oral response is necessary in this test. It consists of 45 cards with four pictures on each card. The child is asked such questions as "Show me the flower," in case of nouns, or "Show me the girl who is running," in the case of verbs. The child then indicates the one picture of the four which represents the word being tested. The author claims a very high correlation between the results of this test and the Kuhlman mental test. The reliability coefficient is .87, which is high for group measurement, but could not be used alone with precision in scoring individual children. Since the cards are used over and over again the test is very inexpensive.

Addition in the First Grade

By JOSEPHINE MACLATCHY

One project of the Bureau of Educational Research, Ohio State University, during the past two years has been concerned with the knowledge of number which first-grade children possess when they enter school for the first time. One subtest of the Number Test for Children Entering Grade One[1] involves the knowledge of addition combinations from memory and without objects. Ten addition combinations couched in problems in this form, "If you have five pencils and get one more, how many pencils will you have then?" comprise the subtest.

The ten combinations were chosen at regular intervals from a table in which addition combinations were ranked for difficulty. This table was compiled by Knight and Behrens according to the difficulty which second-grade children experienced in relearning each of the 100 combinations.[2]

For the purpose of arranging the subtest under consideration, the zero combinations were struck out, then the combinations with sums of more than ten were likewise eliminated. The combinations which were left in this table of difficulty, beginning at the second most difficult, were taken at equal intervals. The combination $3+5$ was eighty-first in difficulty, $5+1$ was eleventh. The ten combinations used in this test are given in Column 1 of Table I in the order of difficulty.

The test was given to 1,226 children in ten cities of Ohio, to 1,123 children at Cincinnati, and to 130 children attending one-room rural schools. The teachers were asked to choose in succession from the alphabetical list of their pupils' surnames those children for testing whose birthdays fell between March 15 and September 15, 1922. These children, who were entering Grade I for the first time, were therefore between six and six and a half when the test was given, during the first two weeks of school in September, 1928.

The percentages of children who gave the correct answer to each combination, when it was presented in a problem and without objects, are given in Table I. The number of children

[1] Devised by the writer in collaboration with B. R. Buckingham.

[2] Knight, Frederick B., and Behrens, Minnie S. *The Learning of the 100 Addition and the 100 Subtraction Combinations.* New York: Longmans, Green and Company, 1928, pp. 17 ff.

tested is given in parentheses at the top of each column. The percentages for the *Ten Cities of Ohio* and for *Cincinnati* are similar, twice the percentages are identical—the most familiar and the least familiar. The widest difference of familiarity is between the two percentages for 1+9, which are 49 and 53.

The percentages in Column 4 showing the familiarity of the 130 rural-school children are considerably less than those for either of the city groups, with the exception of 5+1, which was known by 91 per cent of the country children and 72 per cent of the city children. The test blanks give no clue to the reason for the unusual familiarity of the rural children with this combination, for, while the majority of the group knew the

TABLE I

PERCENTAGES OF FAMILIARITY WITH TEN ADDITION COMBINATIONS

	Ten Cities of Ohio (1,226)	Cincinnati (1,123)	Pupils in One-Room Schools (130)
(1)	(2)	(3)	(4)
5 + 1	72	72	91
7 + 1	64	65	58
1 + 9	49	53	39
4 + 4	37	35	22
1 + 6	49	51	32
5 + 2	44	43	30
8 + 2	44	43	33
4 + 5	22	22	13
5 + 3	32	34	26
3 + 5	27	28	19

sum of this combination, the next most familiar was known only by somewhat more than half of them.

All three groups agree on the three most familiar combinations, 5+1, 7+1, 1+9, and all are in accord on the two least familiar, 3+5 and 4+5. The combinations by percentages of familiarity for each group are ranked in Table II. The two ranked 7 and 8 in difficulty for the three groups are 4+4, 5+3, although the order of ranking is not identical. The middle three, if one may speak roughly, are 1+6, 5+2, 8+2.

Certain other facts regarding this subtest offer interesting implications. Eleven per cent of these children knew not one of these sums; 7 per cent knew the sums of the 10 combinations. Between these two extremes, no record and a perfect

one, the percentages ranged from 12 per cent who gave the correct sum of three combinations to 6 per cent who gave the correct sums of nine of them. The median number of correct sums was 4.7. These figures were computed for the children from the ten cities and the one-room schools combined.[3]

Because of the way the children were chosen for testing, they really form a sampling of the first-grade enrollment of the cities represented. Since, also, these cities—Akron, Cleveland Heights, Hamilton, Kent, Lakewood, Lima, Marietta, Portsmouth, Toledo, and Upper Arlington (Columbus)[4]—are

TABLE II

COMBINATIONS RANKED BY PERCENTAGES OF FAMILIARITY FROM MOST FAMILIAR TO LEAST FAMILIAR

	Ten Cities of Ohio (1,226)	Cincinnati (1,123)	Pupils in One-Room Schools (130)
(1)	(2)	(3)	(4)
5 + 1.....	1	1	1
7 + 1.....	2	2	2
1 + 9.....	3.5	3	3
1 + 6.....	3.5	4	5
5 + 2.....	5.5	5.5	6
8 + 2.....	5.5	5.5	4
4 + 4.....	7	7	8
5 + 3.....	8	8	7
3 + 5.....	9	9	9
4 + 5.....	10	10	10

located in different sections of the state one may with some justice look upon this group as a sampling of the first-grade population of the state.

The facts in Table II then become especially interesting. The inherent difficulty of certain addition combinations seems to be implied. Three representative groups agree on the three most familiar combinations and the two least familiar, while the five lying between fall into adjacent ranks.

Taking the percentages of familiarity into consideration with the ranking, certain facts seem apparent. First, the largest percentages of the children are familiar with combinations

[*Continued on page 406*]

[3] Buckingham, B. R., and MacLatchy, Josephine. "The Number Abilities of Children When They Enter Grade One," *Twenty-Ninth Yearbook of the National Society for the Study of Education*. Bloomington, Ill.: Public School Publishing Company, 1930, p. 504.

[4] There were included also the scores made by 28 children from Port Arthur, Texas.

Achievement in Grammar

By T. C. HOLY

THE Ohio State Department of Education for the past five or six years has been sending out to the eighth-grade pupils of the city, exempted-village, and county school districts examinations in certain of the school subjects. The purpose of these tests is to ascertain the relative achievement of the eighth-grade pupils in the various types of school districts in the state, the results to be used to indicate the need of remedial instruction.

Despite the fact that the giving of these tests is not required either by law or by the State Department, the majority of the county school districts and some of the exempted villages and cities give them each year. In 1929, 64 of the 88 counties, 15 of the 52 exempted villages, and 28 of the 93 cities gave these tests.

Objective tests are used to facilitate the marking and to secure a satisfactory degree of uniformity. All of these tests together with the scoring keys are prepared by Mr. Frank E. Wilson, director of the Division of Publications of the State Department of Education. Since some of the schools close in April, while others operate for nine months, closing in May, two forms of each test are prepared, one to be given in April and the other in May. No data are available on the correlation of the two forms of the test. Most of the county school systems give the tests in April, so the grammar test, the results of which are discussed in this article, is the one given at that time.

For many years and especially since the adoption of the present school code in 1914, the State Department of Education has been promoting a program of centralization. The appropriation of the last Legislature for the assistance of the school districts qualifying for state aid in their expenditures for new buildings, repairs, and equipment has intensified the interest in centralization.

One of the common objections to the elimination of the one-room school is that despite all its shortcomings and inconveniences the instruction in this school is as good or better than that found in the graded school. A number of studies have been made most of which show a significant difference in favor of the consolidated or centralized schools.

To obtain information on the relative standing of the pupils from these two types of schools in Ohio, the State Department of Education asked that the scores from the state examinations be classified into two groups, those for pupils from one-room schools, and those for pupils from village, consolidated, and centralized schools. This classification was to be made for the records of the four examinations, arithmetic, grammar, history, and geography. Replies were received from 71 of the 88 counties. Of these, 9 counties did not give the tests, 6 had no one-room schools, leaving 56 from which data were available.

Since the results of only one of these tests could be included here, grammar was selected, and to give an idea of the scope of this examination, five subtests are inserted here.

Use "who" or "whom" in the blank spaces.
1. .....did you invite to the party?
2. .....does he think I am?
3. .....does he think me to be?
4. He.....you see made this machine.
5. We elected a man.....everyone believed to be a good man.

Write the possessive form of the following:
6. ladies..... 7. men..... 8. James.....
9. he..... 10. brother-in-law.....

Underscore the correct form:
11. We enjoyed (his, him) reading an interesting story.
12. Because of (me, my) being ill, the meeting was postponed.
13. The matron consented to (them, their) going home.
14. She is proud of (him, his) persevering in his task.
15. I don't like (them, their) talking about the school in that way.

Underscore the correct form of the pronoun:
16. He said that you and (I, me) might work together.
17. It has been (them, they) all the time.
18. Is it (we, us) that you mean?
19. Why doesn't he run as fast as (them, they)?

Fill the blanks with the correct form of "lie" or "lay":
20. The boy.....the book on the table.
21. It has.....there all afternoon.
22. She.....down after luncheon for a rest.
23. The children often.....on the ground.

Underscore the correct word:
24. Neither of the two boys (is, are) in his seat.
25. None of the girls (are, is) in the hall now.
26. Neither you nor I (am, is) to blame.
27. Let each speak in (his, their) turn.

The results from 56 counties are shown in Table I. The numbers of pupils taking the test in each county from the one-room school and of those from the village, consolidated, and centralized schools are given. The range of the scores and the average for each group by counties are shown, with the difference in the average percentage for each county indicated in Column 10. From the totals it will be seen that 5,814 pupils from the one-room schools and 11,612 from the village, consolidated, and centralized schools took the test.[1]

In 41 of the 56 counties the average score in grammar for the pupils in village, consolidated, and centralized schools

[1] These totals do not include the pupils in either group from Carroll and Montgomery counties, although their scores are included.

exceeded that of the one-room pupils, the amounts ranging from 1 per cent in Holmes and Wayne counties to 33 per cent in Wood County. In 15 of the 56 counties the average score of one-room pupils exceeded that of village, consolidated, and centralized schools, ranging from 1 per cent in Muskingum

TABLE I

COMPARATIVE SCORES ON UNIFORM EIGHTH-GRADE EXAMINATION IN GRAMMAR IN COUNTY DISTRICTS OF OHIO FOR 1929-30

COUNTY[a]	ONE-ROOM SCHOOLS[b]				VILLAGE, CONSOLIDATED, AND CENTRALIZED SCHOOLS				DIFFERENCE IN AVERAGE PERCENTAGES
	Number of Pupils	Grammar Scores			Number of Pupils	Grammar Scores			
		High	Average	Low		High	Average	Low	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Adams	181	91	50	3	270	83	61	35	+11
Allen	192	74	53	32	209	75	55	39	+ 2
Ashland	140	71	52	27	153	89	47	19	− 5
Ashtabula	90	94	59	10	144	81	54	20	− 5
Athens	186	64	40	14	331	88	47	29	+ 7
Belmont	....	....	....	....	....	....	....	....	....
Brown	157	73	46	15	68	80	57	33	+11
Butler	38	75	41	22	432	72	39	18	− 2
Carroll	...[c]	98	58	16	...[c]	93	66	76	+ 8
Clermont	74	71	46	22	150	80	62	29	+16
Coshocton	185	79	49	6	146	89	63	0	+14
Darke	396	83	55	31	182	86	59	32	+ 4
Defiance	130	73	48	7	101	85	57	25	+ 9
Delaware	9	72	54	43	157	86	51	5	− 3
Erie	69	85	53	34	129	85	57	23	+ 4
Fairfield	128	80	47	21	274	82	50	23	+ 3
Franklin	32	85	47	21	471	83	56	16	+ 9
Geauga	24	83	59	45	84	82	51	30	− 8
Greene	133	90	53	18	257	88	60	20	+ 7
Guernsey	185	96	72	14	302	100	77	14	+ 5
Hamilton	22	90	49	17	139	84	56	32	+ 7
Hancock	73	88	61	21	376	85	59	31	− 2
Hardin	107	87	55	5	45	74	43	18	−12
Highland	71	98	70	40	99	96	68	34	− 2
Hocking	80	90	60	26	127	94	56	34	− 4
Holmes	131	90	55	23	70	85	56	25	+ 1
Huron	....	....	....	....	....	....	....	....	....
Jackson	115	84	55	25	100	93	62	30	+ 7
Knox	179	95	52	23	167	88	64	22	+12
Lawrence	167	99	64	13	267	94	64	30	.....
Lorain	35	84	64	40	433	96	66	22	+ 2
Lucas	19	64	46	29	242	88	58	31	+12
Madison	80	88	67	34	126	86	60	30	− 7
Mahoning	....	....	....	....	....	....	....	....	....
Marion	17	72	54	36	221	88	56	26	+ 2
Meigs	115	78	46	24	183	89	52	26	+16
Miami	81	76	52	32	207	92	58	34	+ 6
Montgomery	...[c]	80	68	27	...[c]	94	76	36	+ 8
Morgan	153	81	47	11	58	78	51	34	+ 4
Muskingum	164	92	52	29	152	82	51	24	− 1
Noble	27	74	52	30	18	87	71	56	+19
Ottawa	112	78	48	23	200	89	59	39	+11
Paulding	116	84	46	29	224	86	52	25	+ 6
Perry	174	77	44	11	207	86	54	28	+10
Pickaway	10	64	47	36	300	89	56	31	+ 9

TABLE I *(Continued)*

County[a]	One-Room Schools[b]				Village, Consolidated, and Centralized Schools				Difference in Average Percentages
	Number of Pupils	Grammar Scores			Number of Pupils	Grammar Scores			
		High	Average	Low		High	Average	Low	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Pike	147	83	57	8	77	90	45	29	−12
Portage	10	88	62	28	494	98	77	27	+15
Preble	14	82	53	40	144	92	51	24	− 2
Putnam	74	73	40	18	252	86	54	24	+14
Richland	208	83	50	25	217	93	58	19	+ 8
Ross	131	97	62	22	232	86	56	13	− 6
Seneca	140	63	49	42	210	63	53	49	+ 4
Shelby	65	80	56	16	...[c]	80	51	28	− 5
Union	9	68	54	35	164	86	58	12	+ 4
Van Wert	46	65	50	31	130	80	55	31	+ 5
Warren	95	88	55	32	140	84	65	40	+10
Washington	168	73	45	19	148	85	50	23	+ 5
Wayne	250	94	56	20	351	96	57	22	+ 1
Wood	8	49	41	35	814	97	64	31	+33
Wyandot	52	96	50	25	225	93	61	29	+11
Total number of pupils	5,814	.....	.....	.....	11,612	.....	.....	.....	.....

[a] Tests were not given in Auglaize, Crawford, Henry, Jefferson, Logan, Mercer, Scioto, Stark, and Summit counties.
[b] No one-room schools are located in Champaign, Clark, Cuyahoga, Lake, Medina, and Trumbull counties.
[c] Information not given.

County to 12 per cent in Hardin and Pike counties. The highest score in the one-room group was from Carroll County, while that for the other was from Guernsey County. The highest county average in the village, consolidated, and centralized group was 77 per cent, shared by Guernsey and Portage counties, while that for the one-room group was 72 per cent also from Guernsey.

These differences might have been changed had the intelligence-test scores been considered. Unfortunately, however, they were not available. In a similar study[2] made in St. Albans Township, the difference in the median intelligence scores of the two groups was but one point. Whether this would be true of the state, as a whole, is of course not known.

Forty-one of the 56 counties show differences in the average percentage in favor of the pupils from the village, consolidated, and centralized schools, while 15 show the reverse. In order to show the distribution of these differences, Table II has been prepared. The figures in Column 2 represent the number of counties in which the average score of the pupils

[2] Black, Lester. "The Value of Consolidated Schools as Determined by a Mental and Educational Survey of One-Room and Consolidated Schools," *Educational Research Bulletin*, II (January 10, 1923), p. 4.

from the village, consolidated, and centralized schools exceeded those of the one-room schools, while those in Column 3 represent the number of counties in which the average score of the pupils from the one-room schools exceeded those from the village, consolidated, and centralized schools. Hence, in 12 counties the scores of the pupils from village, consolidated, and centralized schools exceed those from the one-room schools by less than 5 per cent, while in 8 counties the records of the pupils from the one-room schools exceed those of the other group by less than 5 per cent. It will be noted from this table that in one county the percentage difference in favor of the village, consolidated, and centralized schools falls between 30 and 35. The foregoing figures relate to the average percentages.

TABLE II

DISTRIBUTION BY COUNTIES OF THE DIFFERENCES IN AVERAGE PERCENTAGES

Percentage Differences	Village, Consolidated, and Centralized Exceed (Counties)	One-Room Schools Exceed (Counties)
(1)	(2)	(3)
Less than 5 per cent..	12	8
15.0-19.9 per cent....	4	.....
10.0-14.9 per cent....	9	2
15.0-19.9 per cent....	4	.....
20.0-24.9 per cent....	.....	.....
25.0-29.9 per cent....	.....	.....
30.0-34.9 per cent....	1	.....
Total.....	41	15

The findings in this study are in keeping with those generally obtained whenever similar comparisons are made. The achievement of pupils in village, consolidated, and centralized schools is superior to the achievement of those coming from one-room schools. Later analyses will be made of the results in arithmetic, history, and geography.

EDITORIAL COMMENT

Educational Engineering

NOTHING could be more heartening to school administrators than one implication of Mr. Holy's article on the techniques of school planning. In this treatment is indicated the transition of education from the use of rule-of-thumb procedures to engineering techniques. There was a time when the problem of locating a school building was a matter of single conference, friendly or acrimonious, among school officials who relied upon their own judgment alone. Unfortunately, this procedure is still common. However, the outlook becomes more promising when new data of many sorts are collected by experts and used in making scientific decisions.

This is true not only in the field of school administration, but increasingly curriculum-makers are utilizing techniques which belong in the field of educational engineering. The course of study was once revised with celerity and dispatch after a few conferences or through discussion with individual teachers who made a few changes here and there. Now, numerous examples of thoroughgoing revision are at hand. Once the members of the teaching staff of a school system were expected to revise the curriculum in their spare time. Now, libraries of technical literature are collected, staff members are excused from their duties at appropriate times, experts are used as needed, tryouts of tentative drafts of the revisions are set up, and substantial sums are appropriated by school boards.

When one new school building costing $500,000 is erected, the architectural costs for planning and supervising the creation of the structure amount to from $12,000 to $15,000. Once the planning and construction of the curriculum for the children who were to be housed in the building were supposed to cost nothing. This was because the architect was an engineer, and as an engineer he had to draw plans, carry on clerical computations, and use a force of proper size to do a large amount of clerical and technical work. The curriculum builders worked alone by rule-of-thumb and arrived at off-hand judgments, and so it was concluded that no funds were necessary for the provision of trained assistants.

As education progresses in its engineering stages, the costs for technical work will necessarily mount in their percentage of the total cost of education, yet this is inevitable and necessary for efficiency. A carpenter, a mason, and a blacksmith could once unite forces to erect a business building, but they cannot build a modern skyscraper. The demands are too heavy and the problems too complex. It is so with school procedures. The techniques of school affairs call for increasingly technical and scientific procedures, with all the advantages as well as the possible dangers. W. W. C.

WHEN the annual reports of the research studies which are being made by the members of the staff of the Bureau of Educational Research began to accumulate this fall, editorial fingers tingled with the prospects of articles for the BULLETIN. Various ways of "telling the world" about the variety of investigations under way were proposed. Finally, a grouping of the reports of the projects either by similarity of school strata or by common subject-matter was deemed the most feasible.

In this issue, certain phases of some studies in elementary education are reported. Mr. Dale's article tells of a part of his extensive study of economics for children. In further articles, the same author may report some of the problems which parents actually have encountered in their attempts to teach practical finance to their children, or may describe his plans for work with junior high-school pupils, or tell of his study of the essentials of investment which every schoolboy ought to know.

From Mr. Holy's part in the extensive program of rehabilitation sponsored by the State Department of Education, many interesting reports emerge. In this issue, he compares the marks on the eighth-grade test in grammar received by pupils from country schools with those received by pupils from village schools and consolidated schools.

Mr. Carter's chatty account of the diagnosis and treatment of the reading difficulties of a third-grade boy was part of a term report in a course conducted by the writer of this editorial. The results gathered from one subtest of the Number Test for Children Entering Grade One are reported in the fourth short article. Thus parts of four rather extensive investigations are reported in this BULLETIN. Other phases of these and other elementary-school studies will be reported later. J. H. M.

READINGS

PHILLIPS, EFFIE. "The Question of Posture," *Childhood Education*, VII (October, 1930), pp. 76-80.

Many teachers do not fully realize the importance of the early acquisition of good posture: "The least fault in the achievement of posture in early childhood rather than being cured by growth and maturity is magnified." It is, therefore, essential that parents and teachers begin early to watch the child's posture. It is futile to correct faulty posture by nagging. A child who is happy and alert mentally is apt to carry himself well. The best way to secure a good posture is through play, and some suggestions of carrying this into practice are mentioned in this article.

ROCKWELL, HARRIET D. "Kindergarten Testing Program," *Childhood Education*, VII (September, 1930), pp. 3-9.

The Bureau of Educational Research of the Cleveland schools has devised a kindergarten-testing program which consists of a physical examination by the Medical Department of the School, the Cleveland Kindergarten Classification Test, the individual psychological examination in a limited number of cases by the Psychological Clinic, the Cleveland Kindergarten-Achievement Test, and the Habit and Attitude Rating Test. About ten days after school starts, during which interim the teachers endeavor to help the children adjust themselves to their new environment, especially trained teachers begin to give these tests. Many interesting items have been recorded from these tests regarding the capabilities and the inefficiencies of children of the kindergarten age. The Habit and Attitude Rating Test is still in an infant state, for, as is generally known, it is quite difficult to test and rate social reactions. While it is hoped that this attempt at scoring the child's habits and attitudes will be successful, at least, it is one way of recording the individual child's progress.

WHEELER, H. E., AND HOWELL, EMMA A. A First-Grade Vocabulary Study," *The Elementary School Journal*, XXXI (September, 1930), pp. 52-60.

H. E. Wheeler and Emma A. Howell feeling, as some others do, that the Gates primary-reading test is deficient in some ways undertook a study of the vocabulary of the first grade. It is a comparative study based upon the Gates Vocabulary List and the vocabularies of ten primers and ten first-grade readers ranging in copyright dates from 1922 and on.

When each book had been carefully checked and the word lists had been combined, the following results were found: that the first one hundred words in their list and the first one hundred words in the Gates list had sixty-eight words in common. The entire lists of both have 74 per cent in common. There were some vast differences between some words as in the case of "and." "And" in this study ranked fifth and in the Gates list one hundred seventy-fourth. Another word of wide discrepancy was "said," which was sixth in this list and one hundred thirty-eighth on the Gates list. Those who are acquainted with and have used the Gates list should find great interest in comparing this list with it.

Books to Read

DIXON, C. MADELEINE. *Children Are Like That.* New York: John Day Company, 1930. xiii + 206 pp.

O'SHEA, M. V. *Newer Ways with Children.* New York: Greenberg Publishing Company, 1929. ix + 419 pp.

The author presents in *Children Are Like That* a series of pictures of the activities of children between the ages of two and six. She tells of the development of young children in the nursery-school environment. Many suggestions for adult behavior are included. The book presents, in story form, the life of young children from the child's own point of view. The joy which children experience through excursions, friendship with animals and growing things, dramatic play, big-muscle play, and through real work is the strongest argument for the establishment and maintenance of nursery schools. The thoughtful reader sees through all these activities how the child is growing, developing, and learning the fundamentals of happy adjustment.

The topics discussed in *Newer Ways with Children* were suggested to the author at various times by parents and teachers. The author has attempted to base his practical suggestions on recognized psychological facts. He states his belief that "parents and teachers are interested primarily in guidance and not in scientific data or principles." The book is, consequently, not a scientific study of child nature, but is a popular treatment of questions which concern parents, teachers, and social workers. The terminology is simple, non-technical, and of such a nature that any parent can understand the content. Parents' study groups should find this a helpful book.

AMALIE K. NELSON

LAYCOCK, S. R. *Adaptability to New Situations.* Baltimore: Warwich and York, 1929. xi + 170 pp. (Educational Psychology Monographs, No. 26)

The book covers an experimental investigation carried on by the author and presented as a doctoral dissertation under Spearman at University College, London. It is an attempt to verify Spearman's noegenetic principle, education of relations. The place of this principle in Spearman's system is clearly pointed out by Laycock. Education is the evoked relationship between two presented characters, or an awareness of associated stimuli in terms of the conventionally trained educator. Laycock set out to determine whether adaptation to a new situation is the result of past experience or of education.

"Adaptability to new situations" was found to have numerous meanings, hence, was limited in scope to include "the capacity of a human organism to intentionally modify its reactions . . . in such a way as to make for survival." Two thousand six hundred thirty pupils (mostly boys of eleven and twelve years) were used in five experiments on solution of a problem with and without training of specific or of general nature. The first included a satisfactory solution of the Cyrus story of diverting a river in the capture of Babylon. Five groups, four experimental and one control, were used, each divided on the basis of intelligence as measured by Spearman's test. It was found that little transfer from the stories used as training occurred. The more intelligent pupils gave greater evidence of education. The duller relied on repro-

duction. Training was noticeably helpful only when specific instructions regarding its value were given after each story.

Two other types of material gave similar results. Education in mechanical situations showed less influence of instructions as mentioned above. From his results the author concludes that adaptability to new situations is very complex and cannot be synonymous with general intelligence, and that specific training is most fruitful.

ALVHH R. LAUER

ROSE, MARY SWARTZ, AND GRAY, CORA E. *The Relation of Diet to Health and Growth of Children in Institutions.* New York: Teachers College, Columbia University, 1930. vii + 128 pp.

From a study of dietaries in four child-caring institutions, in the light of the health and growth of the children, the authors conclude that the method of analysis used, which consisted in recording food purchased, grouping all items in six food classes, and finding the percentage of total calories contributed by each group, will reveal probable defects in the diet.

The children were graded on the basis of excellent, good, and poor in health and growth as judged from height-weight and other records of physical condition. Fewest children were graded poor in the institution where the diet was on the whole liberal in quantity and excellent in quality. There were the most children of short stature in institutions which had the poorest dietaries. The authors suggest that only by having a well-trained supervisor watching both food and children is a good food intake maintained. The volume should prove a valuable guide for those desiring to provide dietaries which will insure proper growth and good health for groups of children between five and fifteen years of age.

MEDORA B. GRANDPREY

NEWLUN, CHESTER OTTO. *Teaching Children to Summarize in Fifth Grade History.* New York: Teachers College, Columbia University, 1930. vi + 75 pp. (Teachers College, Columbia University, Contributions to Education, No. 404)

This volume describes an experiment carried on in a number of public schools in New York City. In the experimental classes, the pupils spent ten minutes a day for twelve weeks in making summaries of the lesson; in the control classes this was omitted. In other respects, the work of the two groups was the same. The main conclusions reached by the investigation are:

1. That fifth graders can be taught to summarize in history in at least as short a time as was allotted to this experiment.
2. That "a fairly high degree of skill in summarizing in history, used regularly as a study procedure, seems sure to increase achievement in the mastery of facts and information in history over ordinary ways of studying."
3. That "summarizing is most effective when it is entirely the result of the pupil's own thinking" (namely, without the aid of questions, marginal headings, and the like), "provided the pupils are guided in such a way as to develop the ability to do the kind of thinking necessary."

The study contains the instructions given to the co-operating teachers, and their accounts of the progress of their activities during the twelve-week period.

EDWIN W. PAHLOW

TERMAN, LEWIS M., AND ALMACK, JOHN C. *The Hygiene of the School Child* (Rev.). New York: HoughtonMifflin Company, 1929. xxx + 505 pp.

In preparing the present revision of the 1914 edition, the authors have made gross additions of four chapters on "Mortality and Morbidity," "The Health of the Teacher," "Hygiene of the Schoolroom," and "The Teaching of Physiology and Hygiene"; practically all the other chapters have been expanded by the inclusion of additional statistical results and more recent points of view; exercises, problems, and topics for investigation and report have been added to each chapter. A "selected rather than an exhaustive" bibliography follows each unit of material.

T. ERNEST NEWLAND

BILLINGS, NEAL. *A Determination of Generalizations Basic to the Social Studies Curriculum.* Baltimore: Warwick and York, 1929. xi + 289 pp. (University Research Monograph, No. 11)

This study is one of a group made under the leadership of Harold Rugg for the purpose of discovering the crucial concepts, problems, themes, facts, and generalizations in the vast field of the social studies. The assumptions underlying Mr. Billings' attempt to determine the important generalizations in the field of the social studies are these: that the technique used will distinguish frontier thinkers from the non-frontier thinkers; that the important generalizations in each book will be discovered by the investigator; and that the generalizations used by these writers should be a part of the thinking equipment of every citizen.

The plausibility of the first two problems is heightened when one carefully examines the study. The answer to the third question lies in the field of philosophy and psychology. The findings of this study will be invaluable to persons engaged in making orientation courses on any educational level.

EDGAR DALE

COBB, W. F. *Values and Methods in Health Education.* Evanston, Illinois: Row, Peterson and Company, 1929. v + 362 pp.; vii-xvi pp.

A textbook of health principles and practices and a handbook of teaching methods and devices have been combined here. Each chapter is divided into two parts, the first part taking up the consideration of some outstanding health problem, and the second, of equal importance, presenting methods and devices for teaching the health principles and practices. This dualism in treatment prevents integration of material and method. There is not even close correlation between the subject-matter and suggested methods in the various chapters.

Every phase of health, mental, social, moral, and physical, is treated, primarily from the point of view of the classroom teacher. Suggested teaching methods embrace projects, health games, pictograms, class demonstrations, and the like. Original drawings are supplied for illustrative purposes; the author's so-called "healthgrams" and "pictograms" are a play upon words. Some attention is given to health habits, but emphasis is not placed upon activities as such. Although the treatment is literary and didactic rather than scientific, with few references to experimental studies, the style is interesting.

OSCAR H. WILLIAMS

SCHMIDT, C. C. *Teaching and Learning the Common Branches.* New York: D. Appleton and Company, 1929. xix + 418 pp.

One is a bit curious, as he takes up this latest contribution to teaching methods, to discover the why and the wherefore of another book in an already well-worked field. Yet this reader believes the book amply justifies itself.

The author modestly announces that his purpose is "to help teachers in directing the learning activities of pupils in the elementary school." Undoubtedly, there is much here to give teachers added insight, knowledge, and power in dealing with the common branches as a means of educating children in the fundamentals. Perhaps it is the clearness, simplicity, directness, and completeness with which the author unfolds the learning and teaching processes that lend distinctive quality to the book. At any rate, few books deal so adequately, and with such painstaking care and in such common-sense fashion, and withal from a modern point of view, with the learning and teaching of the eight conventional common branches.

OSCAR H. WILLIAMS

FIELD, HELEN A. *Extensive Individual Reading versus Class Reading.* New York: Teachers College, Columbia University, 1930. vii + 52 pp. (Teachers College, Columbia University, Contributions to Education, No. 394)

Clear statements—statements of the problem which is summarized in the title, of the method of approach, of the attack, and of the results—characterize this little book. Precaution has been taken to make the data accurate, stable, and valuable. The experiment was carried on in thirty-eight classrooms, divided over the first four grades, in four different school systems.

This book contains much useful material for anyone who wishes an exact guide in the changing or administering of a reading program, as the steps used in inaugurating the material are minutely given. Both methods—extensive individual reading and class reading—were found to promote reading skills at about the same rate. However, both methods are not recommended for use in the schoolroom. Class reading promotes accuracy in reading, which is necessary in fixation of skills. The individual method has the advantage of giving a wide background of benefit to the class in discussion, which encourages reading as a method of getting information. The author feels that there is a wide field for investigation in the other grades, as well as a need for proper materials useful for a wide program in individual reading.

MARION E. BRADLEY

In Paper Covers

NATIONAL EDUCATION ASSOCIATION. DEPARTMENT OF ELEMENTARY SCHOOL PRINCIPALS. "The Ninth Yearbook: The Principal and Administration," *Bulletin of the Department of Elementary School Principals,* IX (April, 1930), pp. 132-731.

No alert elementary-school principal will ever permit the years to pass without examination of each yearbook of the department of Elementary School Principals of the National Education Association. The Ninth Yearbook is packed with timely facts and pertinent information concerning the elementary-school principal and his relation to administration and supervision.

Part I consists of discussions of a philosophy of administration. A good, but unfortunately only suggestive, treatment of this topic is given by Charles H. Judd, Mrs. Susan M. Dorsey, and A. J. Hamilton. Part II deals with the practices of good administration. Such topics as time-budgeting, administrative assistants, the school clerk, school organization procedures, school-management problems, health and safety education, pupil-personnel practices, the building of school morale, extra-curricular activities, and the principal's community relationships are given brief but able treatment. E. E. LEWIS

ODELL, CHARLES W. *Summer Work in Public Schools.* Urbana, Illinois: University of Illinois, 1930. 42 pp. (University of Illinois, Bureau of Educational Research, Bulletin No. 49)

Superintendents who are considering the advisability of introducing summer-school work will find the recent bulletin by Mr. Odell of the University of Illinois both interesting and helpful. They will discover that the arguments in favor of summer sessions outweigh the disadvantages, and that there is a distinct trend toward the further expansion and development of public summer schools. R. H. ELIASSEN

Addition in the First Grade

[*Continued from page 393*]

in which one is added to a larger number which is given first. The combinations least familiar are made by adding numbers of similar size together. When the percentages of familiarity for $5+3$ and $3+5$ are considered, the first combination, in which the smaller number is added to the larger number, is the more familiar for the three groups.

These facts are interesting and perhaps significant, since these figures obtain for children who have not been formally instructed in number. Miss Drummond has said that children gain much facility in number through their own activity in counting. The facts in this table seem to bear out this theory. Combinations in which one is added to larger numbers are most familiar, larger numbers added to one come next, two added to larger numbers rank together in familiarity. Then another interesting feature is that combinations with the same sum rank close together as $1+6$ and $5+2$; $4+4$, $5+3$, $3+5$ are seventh, eighth, and ninth in difficulty. These few combinations present interesting problems which, in turn, suggest problems for further study. How will the 100 addition combinations fall when ranked in terms of the familiarity of large groups of uninstructed children? Would information such as this yield an index of real difficulty in learning?

NEW TESTS

INTERESTING is the attempt to evaluate the behavior habits of school children found in the test, Telling What I Do, by Dr. Harry J. Baker, clinical psychologist of the Detroit public schools, and published by the Public School Publishing Company, Bloomington, Illinois. This test consists of 80 statements of possible habitual acts which the child is asked to check so as to indicate what he usually does. The reliability coefficient of the test has been found to be .75. Since this correlation was obtained by repeating the same test after an interval of about four months, it indicates that the pupils are fairly consistent in their reaction to the same actions, but it does not indicate how adequate a sampling of items the test contains.

The results of the test were compared with results obtained by the Chassell-Upton Scale for Measuring Habits of Citizenship which gave an average correlation of about .45. Further studies of individual pupils who rated themselves high or low on the test indicate that possibly 75 per cent of these pupils had rated themselves correctly in the opinion of the teachers.

The test cannot, of course, be used as an accurate measure of the attainment of desirable ideals by individual pupils, but it will probably be useful in estimating the average attainments of a class and in suggesting individual cases for further study. There are two forms of the test, primary and advanced.

INSTRUCTIONAL Tests in Arithmetic for Beginners by John R. Clark, Arthur S. Otis, and Caroline Hatton have been published by the World Book Company, Yonkers-on-Hudson, New York. These tests provide an opportunity for the diagnosing of difficulties of primary-school children in the 100 addition facts and 100 subtraction facts. There are six progress tests in addition and ten in subtraction which provide an opportunity for the pupil to evaluate his own rate of improvement. After taking the six progress tests in addition, a diagnostic test covering sixty addition facts is given. Results of this test serve as a basis for the planning of remedial work. Another diagnostic test is also available to check the effectiveness of the remedial work. A similar procedure is followed in subtraction.

An essential feature of this plan involves the use of individual number cards in place of class flash cards. These number

cards are also published by the World Book Company, and they are designed by the same authors. In practicing the addition and subtraction facts, the pupils work in pairs, one of whom exhibits the small flash cards and the other practices the combinations. This plan makes individual remedial work much easier and is economical of the class time.

A SET of diagnostic reading tests have been prepared by J. E. Ingraham and W. W. Clark, of the Los Angeles city schools, and published by the Research Service Company, Los Angeles. Two tests of two forms each are available, one for the primary grades and one for the intermediate grades. Each test is in two parts, Word Form and Meanings, and Sentence and Paragraph Meanings. As commonly found in reading tests, the word tests are more reliable ($r = .94$) than the sentence and paragraph tests ($r = .88$).

The most noticeable feature of these tests is the organization into subtests for diagnostic purposes. The authors have attempted to analyze abilities required for reading into nine types, each of which is represented by one subtest. The types selected are: ability to recognize mechanical likenesses, ability to identify a word heard with a word seen, wealth of vocabulary, number of common words in vocabulary, ability to discriminate measuring, ability to discriminate between relevant and irrelevant statements, ability to make inferences and deductions, ability to organize materials read, ability to select references and sources of information.

In the booklet describing the tests the authors do not present evidence to show that these abilities are important diagnostic aspects of reading, nor do they indicate how adequately these subtests serve to measure these abilities. If these are the important aspects of reading for purposes of diagnosis, and if these subtests are valid measures, the Ingraham-Clark Reading Tests will be of vast importance in improving reading instruction. The degree to which they will supersede other reading tests rests upon forthcoming evidence of their diagnostic value.

Norms are available from a preliminary administration to twenty thousand pupils. The tests are highly reliable for group measurement. For diagnostic use with individuals the test should be combined with other measurements or else both forms of the test should be given and the results combined.